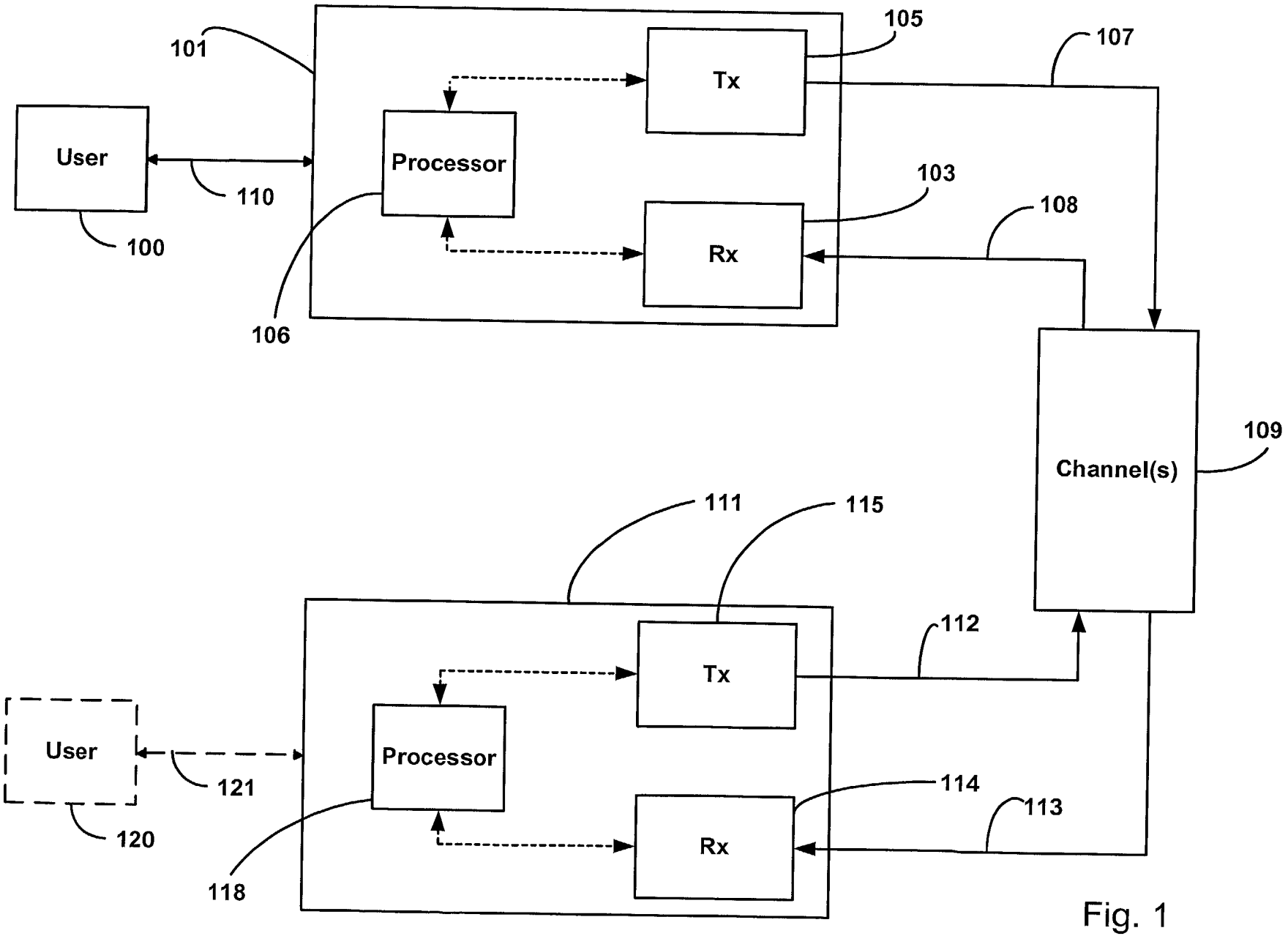
101
105
107
Tx
User
Processor
110
103
108
100
Rx
106
Channel(s)
109
111
115
112
Tx
User
Processor
121
114
113
120
Rx
118

Fig. 1

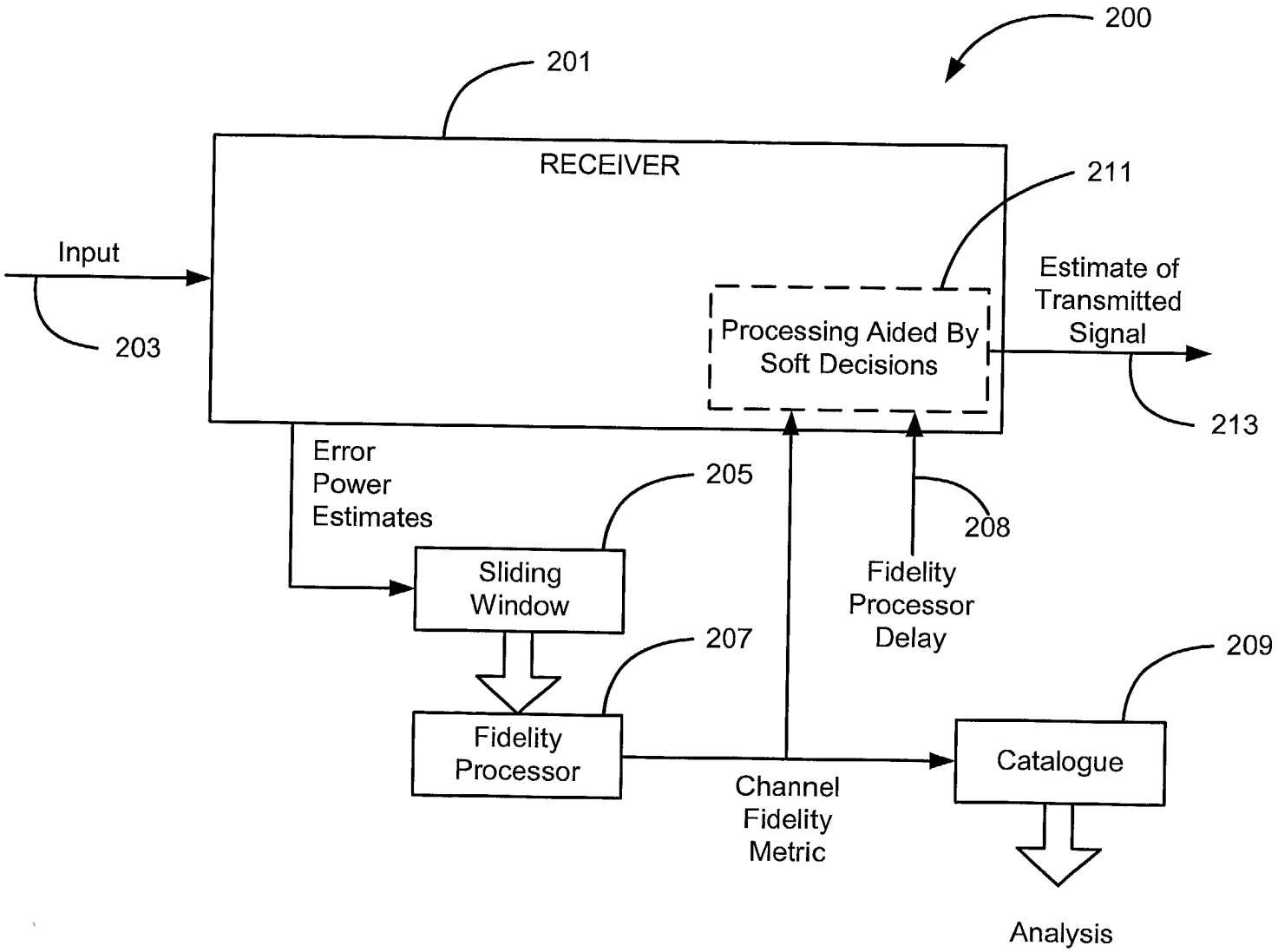
200
201
RECEIVER
211
Input
203
Processing Aided By Soft Decisions
Estimate of Transmitted Signal
213
Error Power Estimates
205
208
Sliding Window
Fidelity Processor Delay
207
209
Fidelity Processor
Catalogue
Channel Fidelity Metric
Analysis

Fig. 2

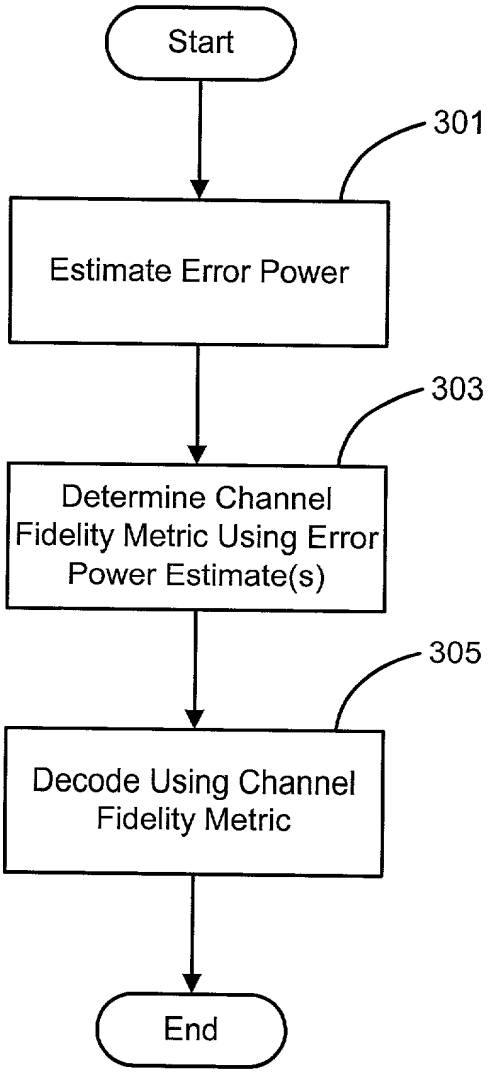
Start
301
Estimate Error Power
303
Determine Channel Fidelity Metric Using Error Power Estimate(s)
305
Decode Using Channel Fidelity Metric
End

Fig. 3

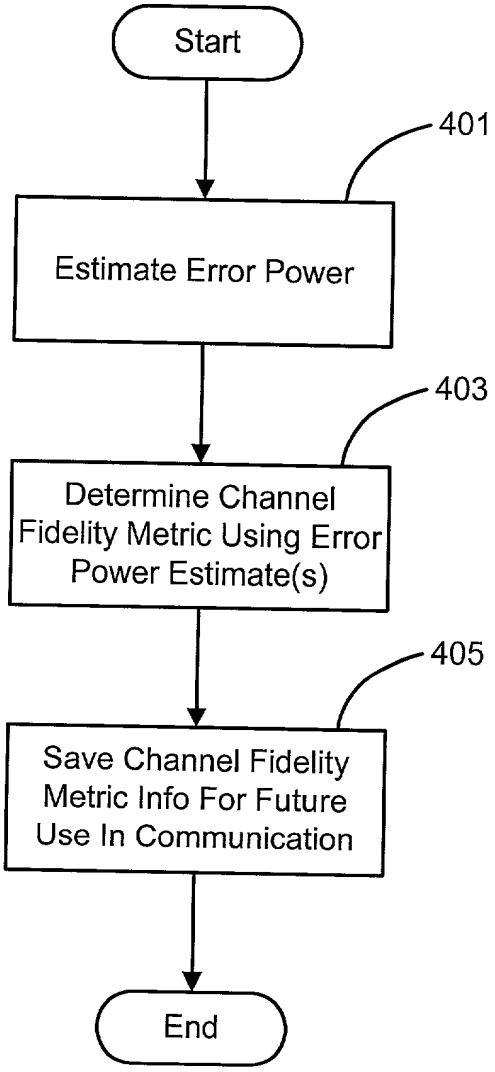
Start
401
Estimate Error Power
403
Determine Channel Fidelity Metric Using Error Power Estimate(s)
405
Save Channel Fidelity Metric Info For Future Use In Communication
End

Fig. 4

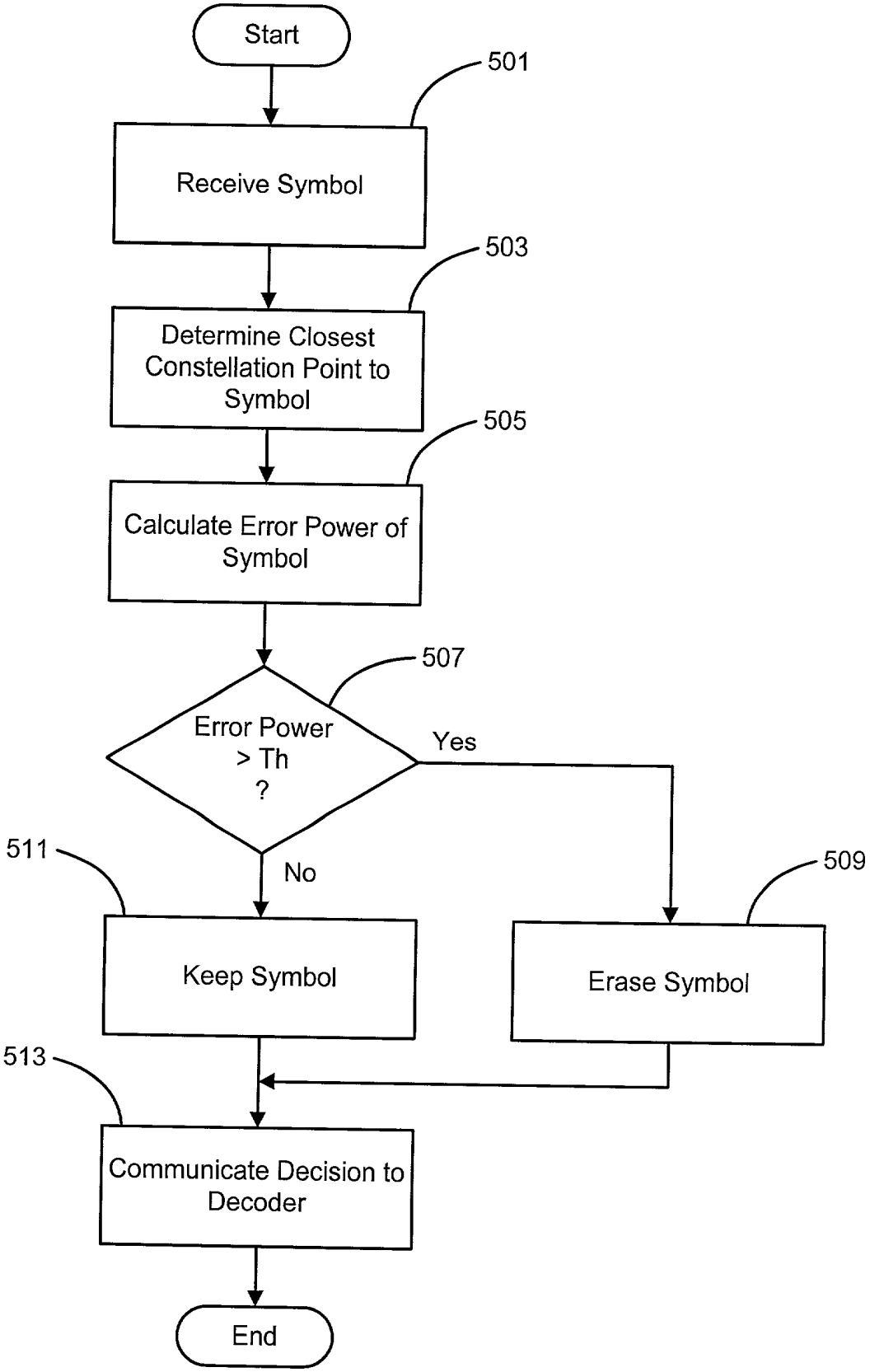
Start
501
Receive Symbol
503
Determine Closest Constellation Point to Symbol
505
Calculate Error Power of Symbol
507
Error Power > Th ?
Yes
No
511
Keep Symbol
509
Erase Symbol
513
Communicate Decision to Decoder
End

Fig. 5

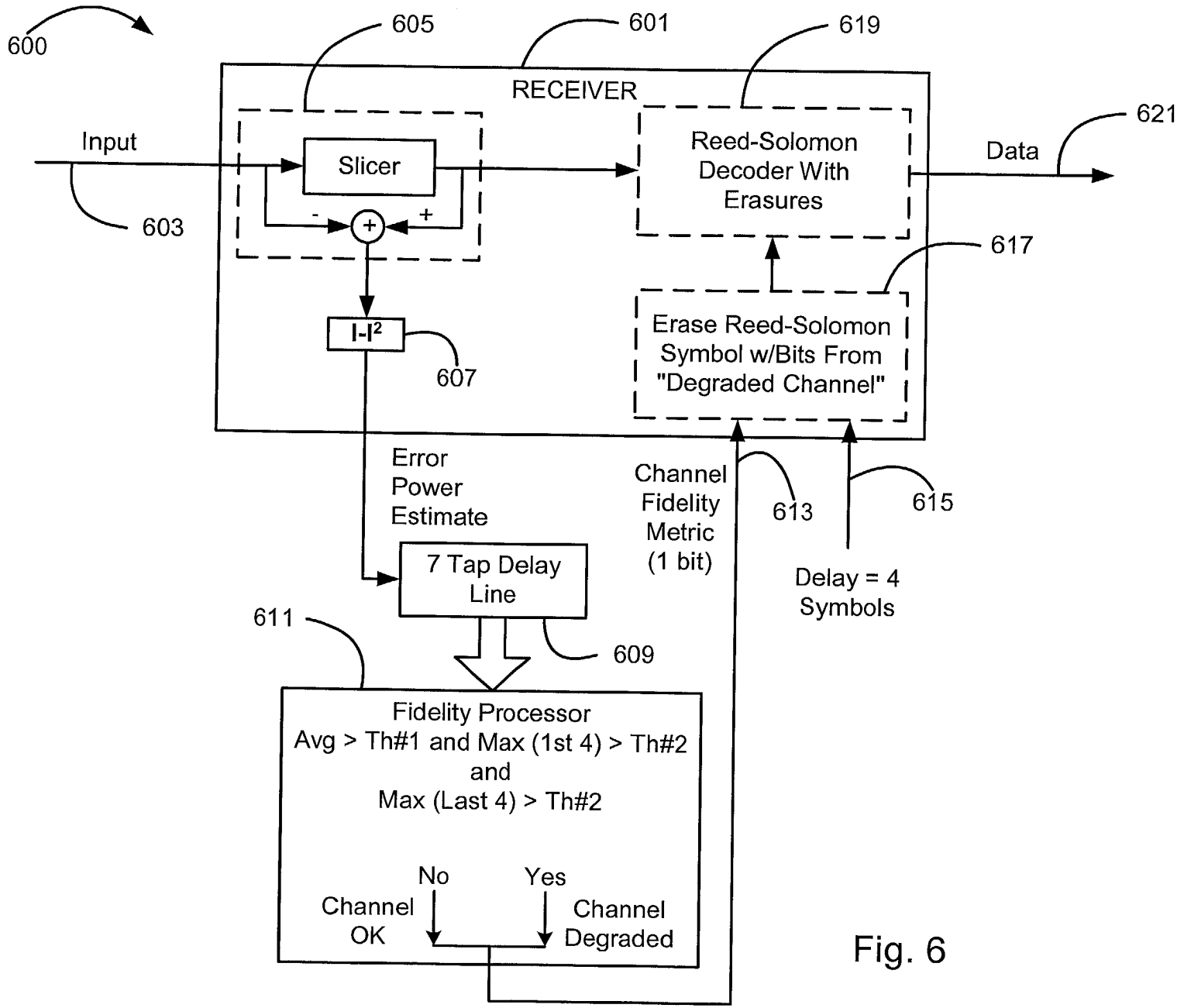
600
605
601
619
RECEIVER
621
Input
Slicer
Reed-Solomon
Decoder With
Erasures
Data
603
-
+
617
I-I²
607
Erase Reed-Solomon
Symbol w/Bits From
"Degraded Channel"
Error
Power
Estimate
Channel
Fidelity
Metric
(1 bit)
613
615
7 Tap Delay
Line
Delay = 4
Symbols
611
609
Fidelity Processor
Avg > Th#1 and Max (1st 4) > Th#2
and
Max (Last 4) > Th#2
No
Yes
Channel
OK
Channel
Degraded

Fig. 6

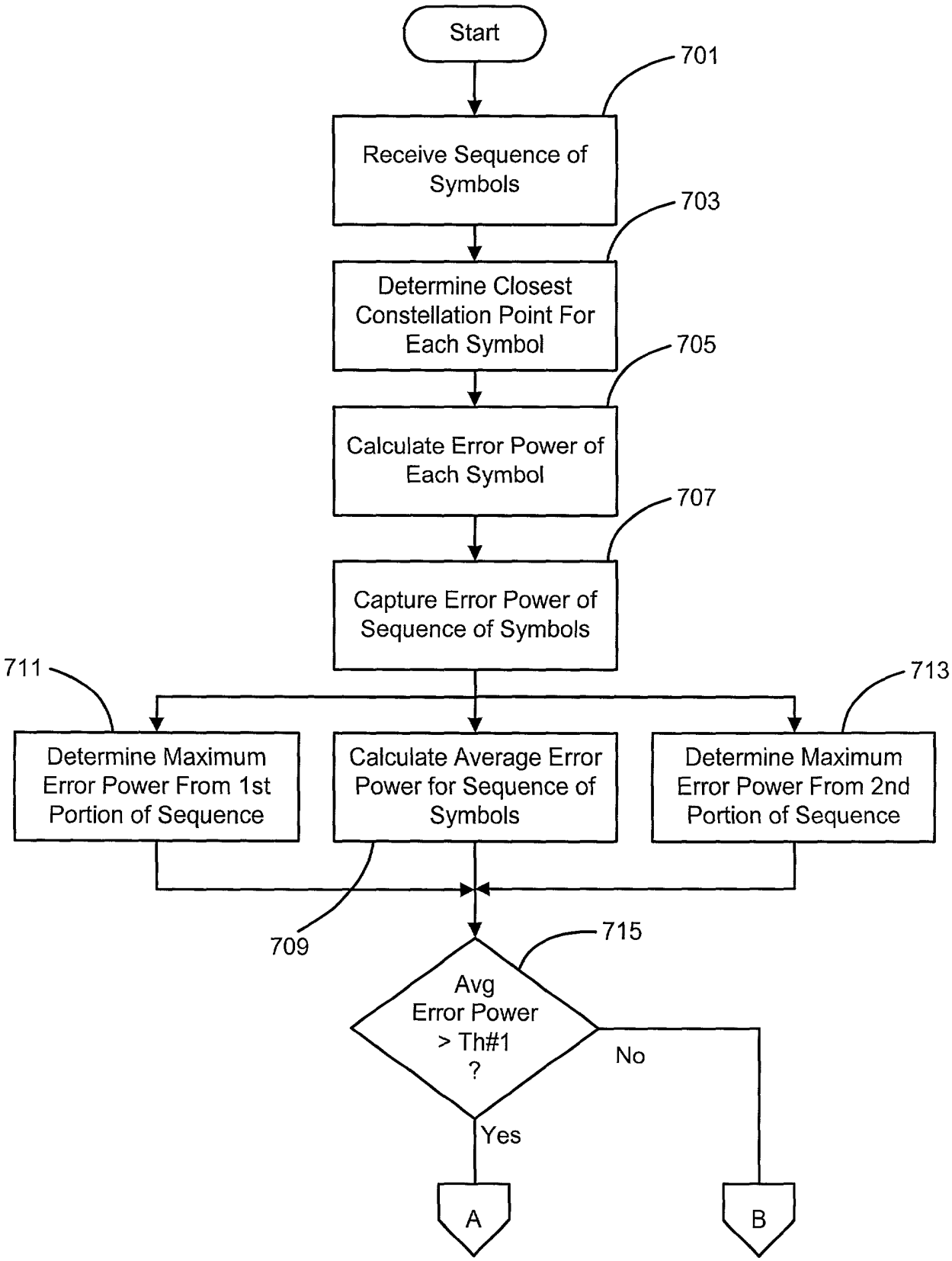
Start
701
Receive Sequence of Symbols
703
Determine Closest Constellation Point For Each Symbol
705
Calculate Error Power of Each Symbol
707
Capture Error Power of Sequence of Symbols
711
713
Determine Maximum Error Power From 1st Portion of Sequence
Calculate Average Error Power for Sequence of Symbols
Determine Maximum Error Power From 2nd Portion of Sequence
709
715
Avg Error Power > Th#1 ?
No
Yes
A
B

Fig. 7A

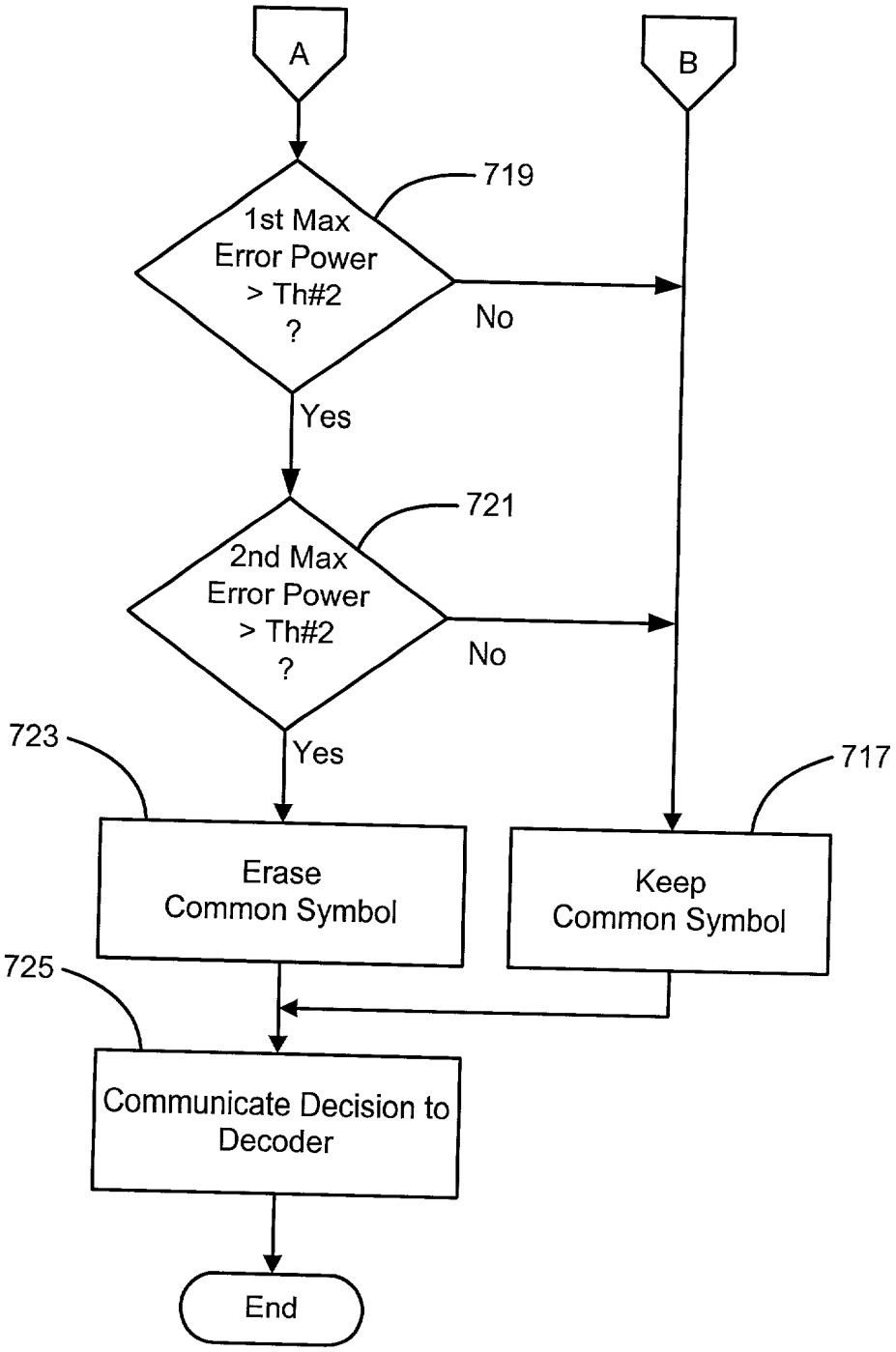
A
B
719
1st Max
Error Power
> Th#2
?
No
Yes
721
2nd Max
Error Power
> Th#2
?
No
Yes
723
717
Erase
Common Symbol
Keep
Common Symbol
725
Communicate Decision to
Decoder
End

Fig. 7B

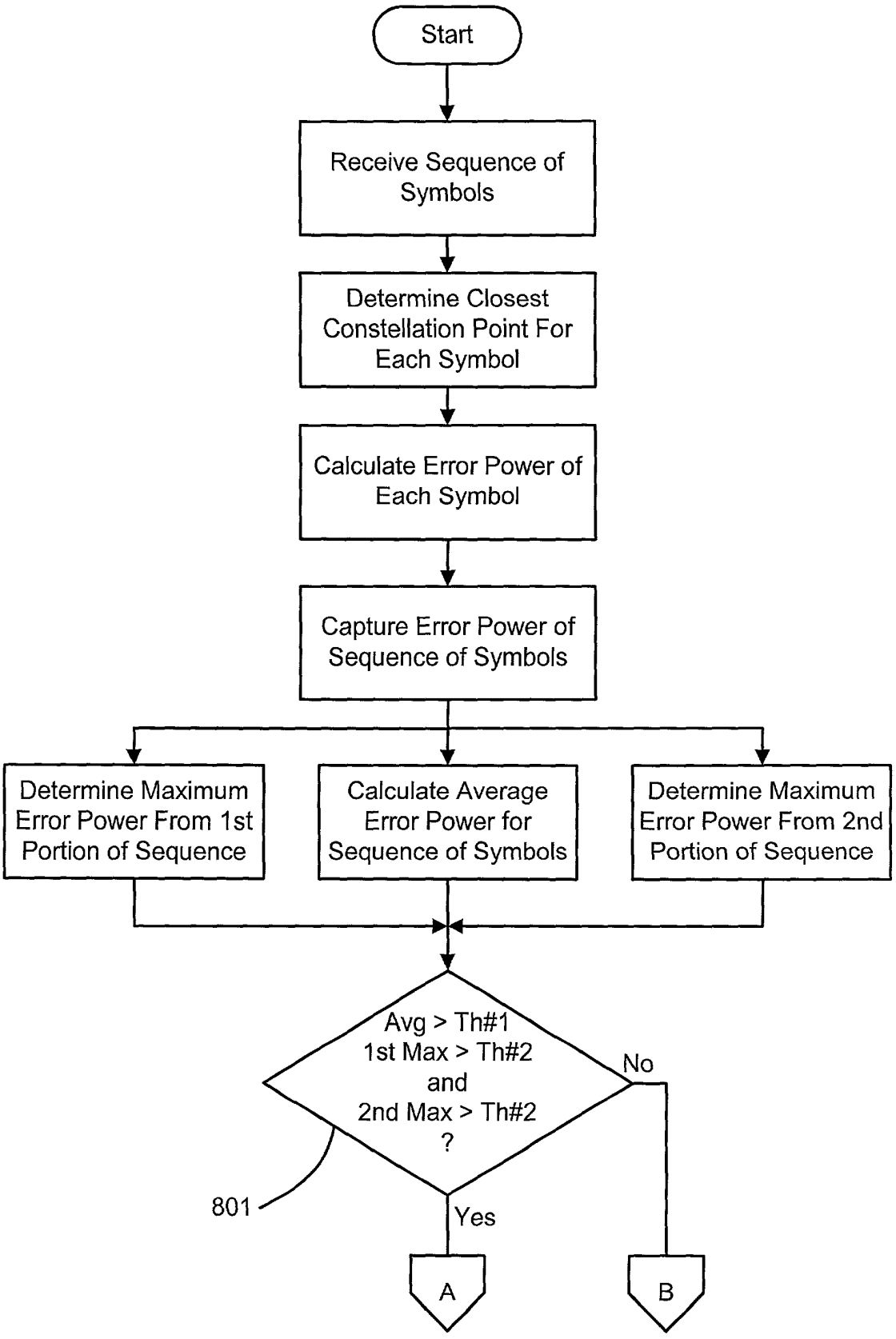
Start
Receive Sequence of Symbols
Determine Closest Constellation Point For Each Symbol
Calculate Error Power of Each Symbol
Capture Error Power of Sequence of Symbols
Determine Maximum Error Power From 1st Portion of Sequence
Calculate Average Error Power for Sequence of Symbols
Determine Maximum Error Power From 2nd Portion of Sequence
Avg > Th#1
1st Max > Th#2
and
2nd Max > Th#2
?
No
Yes
801
A
B

Fig. 8A

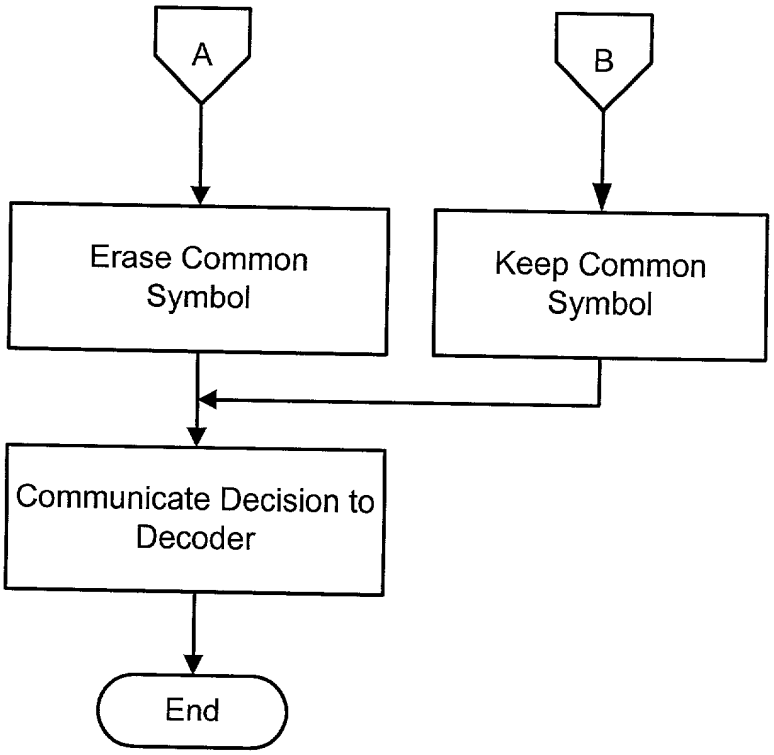
A
B
Erase Common Symbol
Keep Common Symbol
Communicate Decision to Decoder
End

Fig. 8B

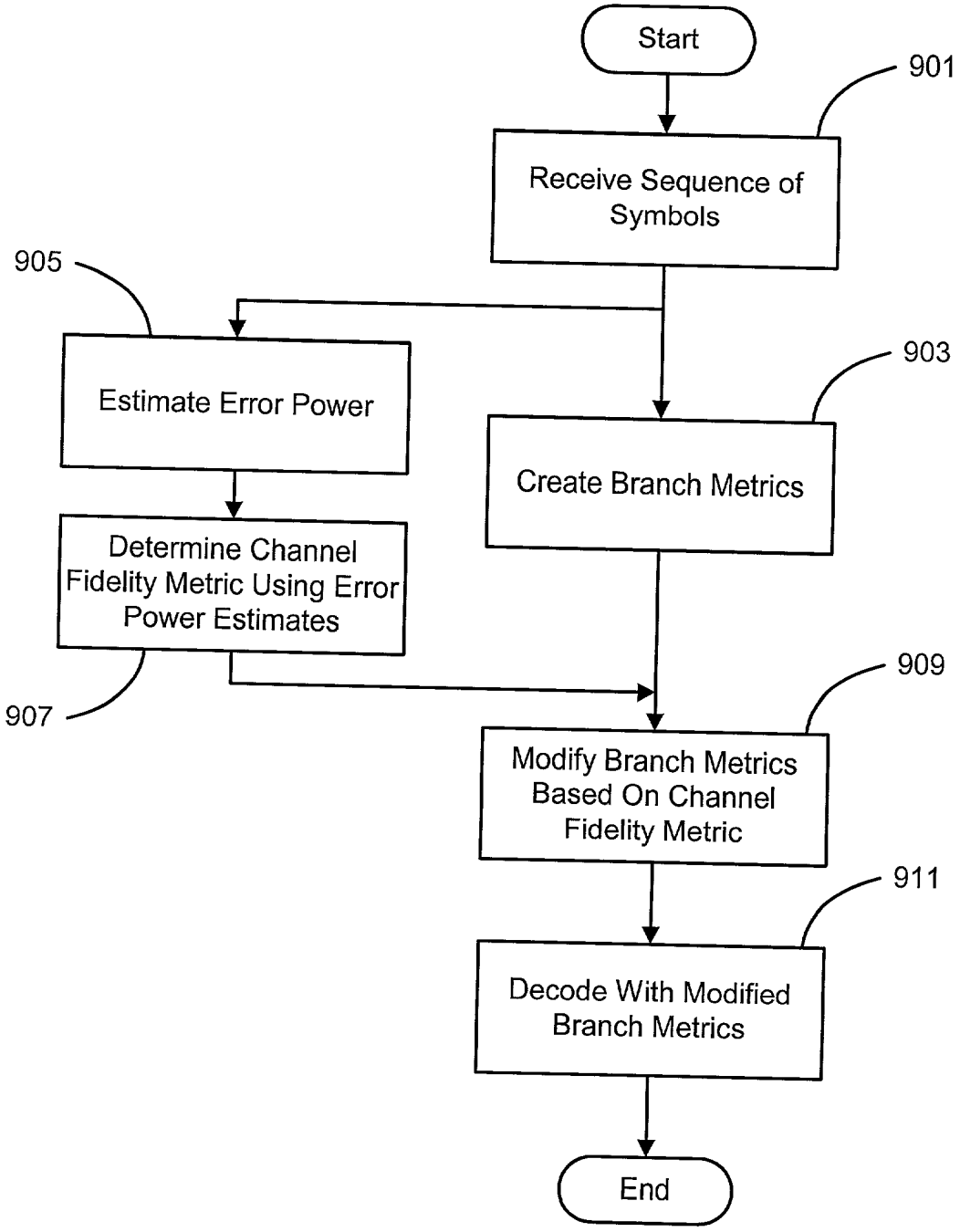
Start
901
Receive Sequence of Symbols
905
Estimate Error Power
903
Create Branch Metrics
Determine Channel Fidelity Metric Using Error Power Estimates
907
909
Modify Branch Metrics Based On Channel Fidelity Metric
911
Decode With Modified Branch Metrics
End

Fig. 9

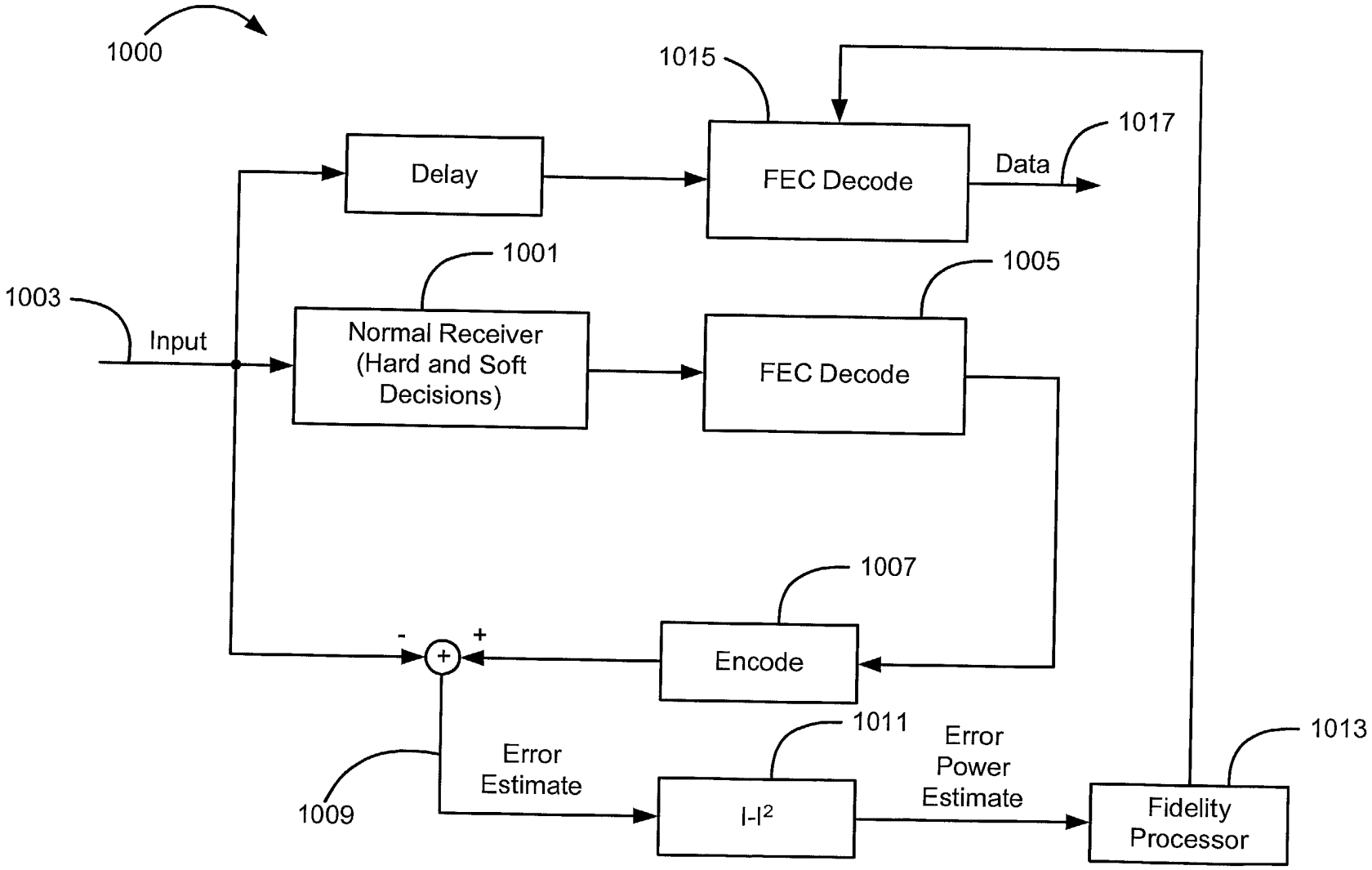
1000
1015
1017
Delay
FEC Decode
Data
1001
1005
1003
Input
Normal Receiver
(Hard and Soft
Decisions)
FEC Decode
1007
-
+
+
Encode
1011
1013
Error
Estimate
Error
Power
Estimate
1009
I-I²
Fidelity
Processor

Fig.10

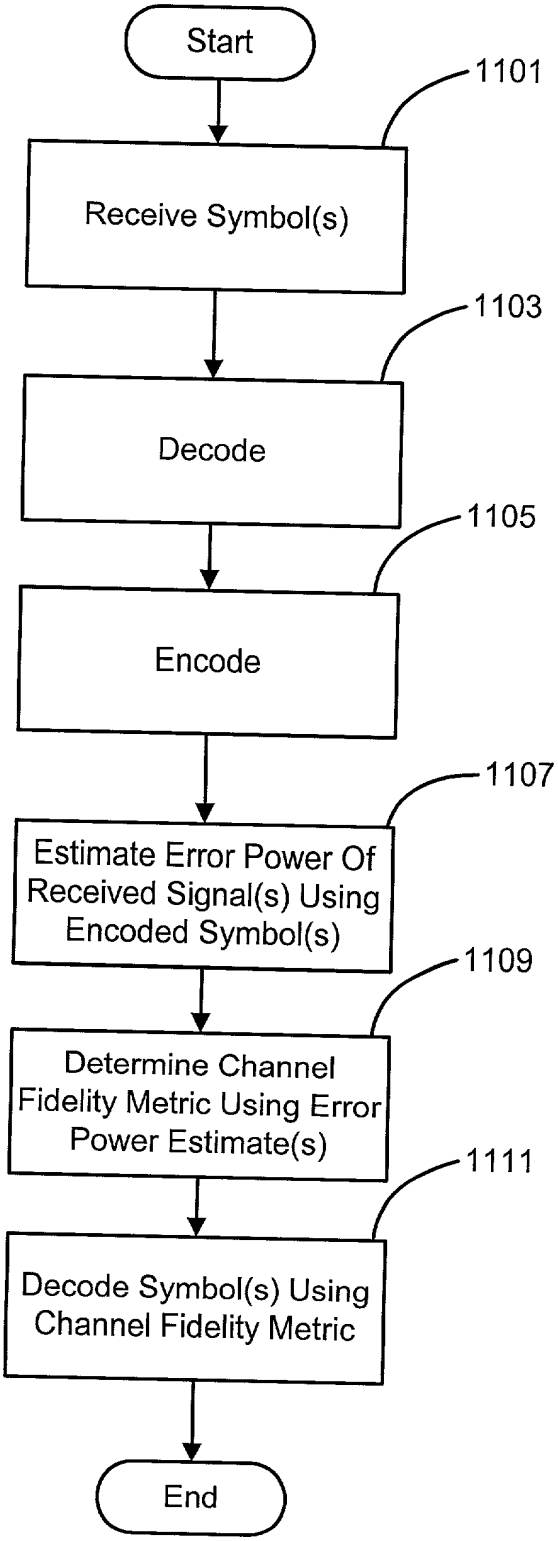
Start
1101
Receive Symbol(s)
1103
Decode
1105
Encode
1107
Estimate Error Power Of Received Signal(s) Using Encoded Symbol(s)
1109
Determine Channel Fidelity Metric Using Error Power Estimate(s)
1111
Decode Symbol(s) Using Channel Fidelity Metric
End

Fig. 11